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INSIDE THE ARCHIVE

WORKING THE COLT MODEL 1883 HAMMERLESS SHOTGUN

THE CONSTITUTIONAL RIGHT TO HUNT: ORION SPORTING GROUP SETS TRAIL DATE • PROFILE OF THE DAEWOO DP51 • ...

ORIGINAL METHODS. MODERN ACCESS.

ARCHIVE EDITION 015

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FROM THE ARCHIVE

The Constitutional Right to Hunt: Orion Sporting Group Sets Trail Date

BY AMERICAN GUNSMITH EDITORS FEBRUARY 2005

ORIGINAL PP. 2

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A press release I received recently indicated that the Orion Sporting Group is going to trial on April 20, 2005, for a lawsuit to protect the constitutional right to hunt and shoot in the state of Virginia. "Virginia and other progressive states have protected and encouraged hunting rights," said Stephen Halbrook, Orion co-lead counsel and constitutional law specialist. "Orion's case is one of the first in U.

S. history to fight a local government's infringement on state constitutional hunting rights." Orion sought to continue the operation of its preexisting shotgun-sports business on anew 450-acre rural tract of land in Nelson County, Virginia, which also includes Orion's licensed hunting preserve.

Litigation began more than a year ago when Orion was denied a conditional-use permit by Nelson County, despite complying with the noise ordinance and working with the Board of Supervisors to keep Orion's busi-

ness within the county. "Orion offers shotgun sports such as clay pigeons and helice as part of our overall mission to provide firearms-safety training and shooting education to hunters," said James Slaughter, Orion's general manager. "The Nelson County Board of Supervisors clearly has taken an anti-hunting and anti-gun position, not only with its denial of Orion's sporting business, but with the new county zoning initiative that intends to regulate hunt clubs in the county.

Regrettably, they have already shut down and then placed arbitrary restrictions at the shooting range of one well-established Nelson County hunt club, and I think there are many more to come." Orion is an international sporting estate offering a diverse landscape containing open fields, rolling wooded terrain, deep forest, creeks, a scenic lake, and over one-half mile of picturesque James River frontage.

Orion plans to use this rural property to allow sportsmen and women and outdoor enthusiasts to experience the splendor of the Virginia countryside and traditional sporting lifestyles. The Orion Estate is composed of a licensed hunting preserve, shooting grounds including a multi-disciplined shotgun-sports center, event grounds, and corporate training facility on the banks of the historic James River in the piedmont of the Blue Ridge Mountains.

For more information about the lawsuit visit or for more info about the Orion Estate see their website at www.orionsports.com. After seeing the way the courts have been used in recent years in a misguided attempt to bankrupt the firearm industry, it's refreshing to see the courts used to protect the rights of citizens and a legitimate sporting business. Orion is to be commended for their stance on an issue of importance to all of us. Editor Keith Lawrence Technical

PISTOLS

Profile of the Daewoo DP51

Designed by borrowing a little from S&W, CZ, and John Browning, among others, the DP51 offers a triggerpull option that's uniquely its own.

BY CHICK BLOOD FEBRUARY 2005

ORIGINAL PP. 3-5

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Compared to other pistols I've covered, background information on this 9mm was tough to come by. All my internet search turned up was a single page on Daewoo International Corporation and three paragraphs of promotional verbiage that probably appeared originally in an annual report. Though the overview listed 15 divisions, one very large auditing office, one domestic plant, and a department store, there was no mention of Daewoo Precision Industries, manufacturer of the DP51 in the late 1990s.

Do you suppose the folks from Seoul, Korea, were too shy of the Brady Bunch to mention their pistol on the internet? Be that as it may or may not be, the pistol is a recoil-operated semi-auto in 9mm Parabellum. Its overall length is 7-1/2 inches. It's only 1-3/8 inches wide, weighs 29 ounces, and originally had a magazine capacity of 13 rounds.

The DP51 we received from Century International Arms, the current importer, arrived with a Korean-made 10-round mag-

azine. (With the recent demise of the inept "assault-weapons ban," we assume the 13-round version will again become available.) Page 11 of the Daewoo's owner's manual gives instructions on how the pistol can be fired three ways. The double-action mode is available only after the slide has been racked, the hammer manually lowered by pulling the trigger and controlling the hammer's forward movement.

Single-action is available after the first shot is away and for each subsequent shot. The trigger pull for DA is 13 pounds. Pull for SA is 5-1/2 pounds. Then, there's "fast-action." Say what? Fast-action is what makes the DP51 unique. The feature is made possible by a two-piece hammer design. When the pistol is cocked, the hammer can be pushed forward to its lowered position without touching the trigger.

In an S&W or Colt, for example, this would indicate an unsafe condition known as "push off." Not so with the Daewoo. When the hammer has been thumbled forward—regardless of whether the safety is engaged

or not—the trigger will return forward. Then, lightly pulling the trigger will cause the hammer to jump back to full cock. The net result of this is a first-shot double-action trigger pull with a single-action pull weight of 5-1/2 pounds instead of 13 pounds.

Of course, all single-action pulls thereafter are at the lower weight. This is possible because of the hammer insert (#43). When the hammer is cocked, the rear of the trigger bar (#18) is forced down and forward, and the notch on the insert engages the sear (#38). This frees the hammer to be pushed forward and allows the trigger to return to its original DA position. Ingenious, those South Koreans. Field Stripping You know how it's done with a M1911.

You don't do it exactly the same way with the DP51—except for removing the magazine, checking the chamber, and wearing eye protection.

PROFILE OF THE DAEWOO DP51 CONTINUED

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Hold the pistol in your right hand. Retract the slide until the take-down notch (see photo) is aligned with the front end of the slide stop (#34). Press on the slide stop, right to left, with a finger of your left hand. This will get it started out of the frame to the left. From there you can get under it, if necessary, with a small screwdriver wearing protective tape on its blade to lever the stop all the way out. The slide will move forward under pressure from the recoil spring and will slide off the frame.

Invert the slide. Compress the recoil spring slightly, then lift it and its recoil guide up to clear the barrel and control the release of spring tension. Tilt up the lug end of the barrel and remove it to the rear. The bushing (#1) is soldered to the slide. It stays put. Detail Stripping the Slide Pin #11 retains the firing pin. It's a 3/32-inch roll pin, and drifts

in either direction. Invert the slide and depress the firing-pin catch (#10). The rear of the firing pin (#7) will pop out a little.

Grab it, and pull it and the firing-pin spring (#8) from the slide. Release the pressure on the catch, then lift it out followed by its spring (#9). The extractor pin (#4) is a 1/16-inch roll pin you drift downward to release the extractor (#5) and its spring (#6). If you need to remove the rear sight, it drifts out in either direction. Detail Stripping the Frame Remove the grip panels by backing out the grip screws (#48). Each screw wears an O-ring (#47) to ensure lasting tightness.

If you lose one or more of the rings, replacements can be purchased at any hardware store. Now locate part #40, the magazine-catch spring, on the schematic. It looks something like a fish hook with a bend where the barb should be. Look in at the forward side of the magazine well. About 2-1/2 inch-

es up from the bottom on the right-hand side, you'll see how #40 fits in a hole in the frame. There's another hole just like it on the left side of the well. Push on the magazine catch (#41).

See how the long leg of the spring runs through the catch? All you have to do to switch the catch from rightto left-hand operation is to pry the spring from its frame hole, lift it out of the gun, reverse the catch, insert it back into the gun, spear it with the long leg of the spring, and snag the bent end of the spring in the opposite frame hole. Every conversion should be so simple. You next remove the hammer spring (#49) and hammer-spring retainer (#50).

To get at them you must drift out the retainer pin (#45), but that's not as easy as it sounds. Ideally, you'll have 1/4 inch of a Reversing the catch from rightto left-hand operation is described in the text.

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Daewoo DP51 9mm Semi-Auto Pistol (Specificationssubject to changewithoutnotice) 1 Barrel Bushing 2 Slide 18 Trigger Bar 3 Sight, Rear 19 Hammer Bushing 4 Extractor Pin 20 Hammer 5 Extractor 21 Firing Pin Safety Lever 6 Extractor Spring 22 Hammer Plunger Spring 7 Firing Pin 23 Right Safety 8 Firing Pin Spring 24 Hammer Plunger 9 Firing Pin Catch Spring 25 Ejector 10 Firing Pin Catch 26 Trigger Bar Spring 11 Firing Pin Lock Pin 27 Slide Stop Detent 12 Barrel 28 Slide Stop Spring 13 Recoil Spring 29 Slide Stop Plunger 14 Recoil Spring Guide 30 Slide Stop Safety Lever/ 15 Trigger Spring Detent Pin 16 Trigger 31 Left Safety 17 Trigger Pin 32 Safety Spring 33 Safety Plunger 34 Slide Stop 35 Ejector Pin 36 Sear Pin 37 Sear Spring 38 Sear 39 Hammer Pin 40 Magazine Catch Spring 41 Magazine Catch 42 Frame 43 Hammer Insert 44 Hammer Strut 45 Hammer Spring Guide Pin 46 Left-Hand Grip 47 O-Ring 48 Grip Screw 49 Hammer Spring 50 Hammer Spring Guide 51 Grip Plate (R).

H.) 52 Magazine Bottom 53 Magazine Spring Plate 54 Magazine Spring 55 Magazine Follower 56 Magazine Body 1/4-

inch-diameter hardwood dowel sticking up from your bench for this purpose. If you don't, embed one in a piece of 2x4, and press the bottom end of the retainer down on it. It's okay then to drift out #45, because you'll have control of the hammer spring as it pushes out the retainer. Some might not consider the next step a must, but it will protect the frame and make further disassembly easier.

This next step is rigging your vise jaws with some form of protection. It could be of leather, lead, or a couple layers of duct tape. It's also advisable to insert a block of hardwood in the mag well to prevent deforming the grip frame when you secure it between your just-protected vise jaws. Did I mention having a plastic bag on hand? You're going to be working on the left and right safety levers. Pin #30 is one of two on the schematic. Both are 3/64-inch roll pins.

The one I speak of now retains the left safety lever (#31) plus the lever-safety spring (#32) and plunger (#33). When you drift #30 downward and out, #32 and #33 will want to take off in great haste. Ergo, the plastic bag. Once those parts't he lever and

pin #30"are "in the bag, you can slide the other half of the safety (#23) off to the right.

Looking closely at the trigger bar (#18) from the top, note how the hooked end of the trigger-bar spring (#26) rides in a slot under the bar and the other end of the spring is located in a frame slot. Reach in with a small tool, depress the spring, and swing it out from under the bar. The stud at the front end of the bar remains captive, being held in by the trigger spring (#15).

The legs of this spring are the same length; one rests on the stud, the other extends forward to sit on a flat just in front of the trigger. Push the leg in contact with the trigger-bar stud off the stud to the left, remove the trigger bar, and lift the trigger-bar spring from its frame slot. The trigger (#16) and its spring are lifted out as a unit later to be separated by pushing out the trigger pin (#17) with a toothpick.

The hammer pin (#39) has to be pushed out from right to left because it has ahead on its left end. The hammer (#20) and the firing-pin safety lever

FINISHING

Oil-Finishing the Wooden Stock

It's time-consuming, but you can't go wrong by following these instructions from a member of the American Custom Gunmakers Guild.

BY JERRY FISHER FEBRUARY 2005

ORIGINAL PP. 7-9

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The stock-finishing techniques presented here are ideas that have evolved over the years. It's certainly possible that you have ideas and techniques that work better for you. If you do, I would like to hear from you; yes, you can teach an old dog anew trick. Before we can start the actual finishing process, we must bring the stock into symmetry. No small trick. Think in terms of straight lines, arcs of circles, and parabolic curves.

We have to unite all of these and come up with a gun handle that is not only symmetrical but is in proportion, feels good in the hand, and looks good to the eye. It's also important to come up with a stock that is ripple-free. One of my rules is never to shape a stock with sandpaper. You'll use sandpaper, of course, but only after the stock is symmetrical and fully shaped. To bring the stock into symmetry, I use gunk sticks. These are perfectly flat little boards that you can smear with lamp black and oil.

By rubbing these boards lengthwise on the stock, you can see the high spots. Once you get hooked on the gunk-stick system, you'll start making better stocks. I like to knock the high spots down with curved-tooth

files, scrapers, spoke shaves, planes, and chisels. It's almost impossible to do this by eye alone. In addition to those tools, you'll want to have #49 and #50 pattern files, bastard files, a small block plane, and sanding blocks.

The wood you are working with will sometimes compound the problems of the finish work you're doing. Some of the higher grade woods are extremely hard. As you probably know, some of the really hard walnut gunstocks almost have to be shaped with files. The #49 and #50 files are god-send here. The curved-tooth files are great for removing file tracks; when these are combined with scrapers, straightedges, and gunk sticks, you're on your way to making better stocks.

As for the actual dry sanding, you will need an assortment of sanding blocks. My best sanding blocks have a thin rubber backing cemented to them with Ply-bond rubber bonding cement. The rubber from a bicycle inner tube makes a good backing for sanding blocks.

Solid wood blocks will work, but they're very hard on your sanding medium. (Hardwood blocks tend to tear the grit from the paper.) Another thing to remember is, the better the job you do with your scraping tools and curved-tooth files, the easier it will be to do your final sanding. When you're satisfied with your scraping and filing efforts, and have the stock shaped exactly as you want it, you can begin sanding with 220-grit paper.

Keep in mind that it's almost impossible to sand out file marks left by a #50 file. If your stock has been properly prepped, however, you'll be able to complete your first dry sanding with 220 wet-or-dry. The main effort of your first sanding should be to maintain the symmetry and straight lines you have worked so hard to establish. By sanding with the grain of the wood with the 220-grit paper, you should be able to eliminate any cross scratches you may have left.

Once you're finished sanding with the 220-grit paper, it's time to The two spokeshaves are fine tools. The wooden one is made by Marples in England. The black spokeshave is made by Stanley, as is the small block plane.

OIL-FINISHING THE WOODEN STOCK CONTINUED

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The long scrapers cut on the push and are only sharp on the end. They can be made from 0-1 tool steel. The small scraper cuts on the pull and is also made from 0-1 tool steel. raise the grain. I raise the grain three times. To raise the grain, simply wet the stock with a wet paper towel. When the wood has dried, you can cut the raised grain with 320-grit paper using felt-backed sanding blocks.

This procedure is normally called “whiskering.” It’s a good idea after each whiskering to blow the stock off with compressed air. This will clean most of the sanding dust out of the wood pores. When you raise the grain for the third time, leave the stock unsanded. You’re now ready to apply the first coat of finish. I’ve been using Velvit oil (Velvit Products, Appleton, WI 54913; as a stock sealer for many years with good results. You will want to use #200 Natural.

Although there are many finishing oils and varnishes available, I haven’t found anything I like better than Velvit oil. It is a good idea to thin the first few coats about 10 percent with mineral spirits. You will want to get as much penetration as possible. The idea behind an oil finish is to get the sealer as deep into the wood as possible. In order to get the Velvit oil on the stock, I use swabs made

from foam. This is the same foam you can buy in surplus stores for making mattresses or packing or whatever.

The first day is very important. On the first day, keep swabbing the Velvit oil on the stock until it is completely saturated. Usually, four to six coats will suffice. The object here is to get as many coats as possible on the stock before the first coat dries. Keep saturating the stock the first day. By the end of the day, by coating about every two hours, the stock should be well saturated. The following day, look for dry spots on the stock, if you find any, saturate them with more Velvit oil.

You should now let the stock dry for four or five days. Once the Velvit oil is dry, you’re ready for the first wet sanding. For cutting oil, you can use Velvit oil cut 50 percent with mineral spirits. Your first wet sanding will be with 320-grit wet-or-dry sandpaper. This sanding is very critical. Be sure and use small sanding blocks that will help you preserve all the detail you’ve been so careful to create. The key to wet sanding is to fill the pores of the wood.

The trick of any wet sanding is to know when to stop the cutting action of the wet paper. If you go too deep, you will pull the sealer from

the pores of the wood. If you don’t go deep enough, you will leave a glaze on the stock in spots. Essentially, you want to leave the sealer in the wood, but without a buildup on the surface. For this process, experience is your best teacher. (In the 1950s, I oil-finished stocks for Carl Peterson for \$8 each.

This was not exactly a high-profit venture, but the experience proved valuable.) Once you have completed your first 320-grit wet sanding, clean the stock thoroughly with a clean rag and mineral spirits. After the stock has dried from the cleaning, give it a careful visual inspection. If you find any glazed spots or shiny areas that indicate your sanding has not gone deep enough, carefully continue your work with the 320-grit paper and sanding oil until you are certain these spots are eliminated.

Clean the stock again with mineral spirits and let dry. Next, you can swab on another coat of Velvit oil, thinned about 50 percent with mineral spirits. When you’re satisfied the stock is saturated—usually two very light coats—let it dry overnight. Now you’re ready for They are simply flat boards that are smeared with lamp black and oil.

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the next wet sanding which is done with 400-grit wet-or-dry paper. Once you've finished this wet sanding, your stock should be well filled and ready for the next coat of finish. Using Velvit oil thinned 50 percent with mineral spirits, give the stock a generous application of the diluted oil. This time, rub the finish in by hand. It should take about 10 minutes to do this, and when the stock will not take any more finish, wipe it down with clean cotton bed-sheet material.

Let it dry overnight, and repeat the process the following day. The object here is to build a slight sheen on the surface of the wood. Repeat this for three or four days, and then let the wood dry thoroughly for about two days. Then you'll be ready for the final sanding. The final sanding is accomplished by using the same cutting oil we started out with. The wet-or-dry paper I use for this sanding is called "ultra fine." This sanding should go pretty rapidly. By now, the stock is completely filled.

With the ultra-fine sanding, you're making the wood as smooth as you possibly can. Successive rub-downs over the next few days with Velvit oil should give you a decent finish in the wood. Be sure and wipe the stock down between rub-downs, as this will avoid a buildup of finish on the surface of the wood. A well-done oil finish is very handsome, and will continue to take on a nice sheen as time goes by. In some cases, staining the wood might be practical, however, not all wood will take a stain.

I usually stain wood to highlight the background color of thin-shelled walnut. The object here is to produce a reddish-pink background. This is not easy to do, but it is possible. For many years, I had read about alkanite root for red stain. I finally came by a good supply of the magic elixir. However, try as I might, alkanite root didn't work very well for me. I did finally find some stains I could work with.

These stains are aniline dyes sold by Woodworker's Supply in Wyoming. The dyes I like to use are alcohol soluble. The colors that work best for me are burnt-umber and dark cherry. For best results, don't try to stain light-colored woods. For me at least, dark woods are better for staining. What I try to do with the stain is to impart a reddish-pink color to the background. The black colors in thinshelled walnut won't stain anyway.

The staining takes place after you have completely sealed and completed your last ultra-fine sanding. You'll want to start by washing the stock with mineral spirits using a clean cloth. Allow the stock to dry about two hours and wash the stock down again with alcohol and a clean rag. This will dry rapidly and then you're ready to stain. Rubber gloves are mandatory for staining. You can buy latex surgical rubber gloves at any drug store. The gloves are disposable, and it's doubtful you'll use them more than once.

I'm going to give you my sequence for using the aniline-dye technique, but you may want to experiment using different

amounts of the available dyes. Keep in mind that this is not for the faint of heart! You'll be using two of the alcohol-soluble dyes—burnt umber and dark cherry. An old teaspoon will make a good measure.

Start by using one part burnt-umber and two parts dark cherry, mixed in a small glass or plastic container. (A half teaspoon of burnt-umber and a full teaspoon of dark cherry combined with two ounces of alcohol should give you enough stain for one average stock.) Take your time with this process; this isn't something you want to try to do in a hurry. Mix the dyes thoroughly with a wooden paddle or Popsicle stick. Once you have the stain mixed, swab it on the stock until you have it covered.

Let the stock dry for 3 to 4 minutes. When the stock is dry, you can wash it down using paper towels saturated with alcohol. Continue the alcohol wash until you have attained the desired color. As they say, "beauty is in the eye of the beholder." Once you have achieved the desired color and the stock is dry, give it two hours to dry, and then you can "set" or stabilize the color.

To set the color, smear the stock generously with Velvit oil. (Don't forget the rubber gloves.) Let the oiled stock dry for 6 to 8 minutes, and then wipe it down with a clean piece of cotton bedsheet. If you like what you see, consider the experiment a success. In the days ahead, continue rubbing down the stock with Velvit oil and wiping off the surplus. When you have the desired finish, you're ready for the checkering process. ■

PISTOLS

Getting Revolvers Right

The use of cast bullets in a revolver makes sense, but only when two critical dimensions are right on target.

BY RAY ORDORICA FEBRUARY 2005

ORIGINAL PP. 10-15

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Anyone who does a great deal of revolver shooting will surely want to use cast bullets. The reasons are many, but simply stated, cast bullets provide some of the least costly reloads combined with some of the best potential results on targets or game. Also, good cast bullets give less wear on the barrel than any jacketed bullets, and over time, that makes a big difference.

Swaged, purelead bullets are fine for light loads, but mid-range and heavy handloads require harder metal to withstand the greater forces imposed on the bullet by the burning powder and by the dynamics of the gun itself. The successful use of cast bullets, however, rests on two critical dimensions. If these dimensions are wrong, you'll have poor accuracy and/or bad leading. The critical dimensions are the outlet of the cylinder openings and the groove diameter of the barrel.

I've recently been reading Elmer Keith's *Gun Notes*, two delightful volumes that contain most of what the grand old master—father of the .44 Magnum—wrote for

Guns & Ammo magazine over several decades. Keith's writing reminded me of lots of stuff I knew years ago, but forgot, and it explained some mysteries that have swirled around in my brain for many years—stuff I never bothered to look into until just recently. And when I did, man! Big surprise.

Some 30 years ago I was a member of a club in the Denver, Colorado, area that gathered twice a month for what we called the "Bower-Hansen Magnum Matches." Twice a month we shot at steel plates at 100 yards, 40 rounds per match, full-power loads. Most competitors used cast bullets. No one I knew used gas checks, which seem to be useless in revolvers. I competed with an S&W Model 29 with 6-1/2-inch barrel, and did well enough. But my old Smith always leaded severely.

The lead would stick to the rear part of the barrel and to the forcing cone, and often required scraping to remove it. A Lewis lead remover helped, but would not get it clean. I used a dry bristle brush to scratch out the lead between strings, and always got a

bunch of lead out of my gun, no matter how hard I cast my bullets. I knew the barrel slugged 0.429 inch, and always sized the bullets to that dimension, but still got bad leading. I never bothered to ask myself why.

Years passed, and when I needed a short carry gun in Alaska, I had the factory install a four-inch barrel on that old six-shooter. The new tube also had 0.429-inch grooves, and With a low-cost reamer, the fix was simple. This made the gun a better shooter with cast bullets. The author feels he did not damage the classic 1907 Colt, because the alterations were invisible and made it a better gun. still leaded significantly. Eventually, I moved to Idaho, right across the street from Elmer Keith's old ranch.

Keith's books (and, probably, his ghost) brought to mind my Alaskan handgunning experiments, when I shot cast bullets into snowbanks, and in the springtime collected and inspected them. I learned then that everything Keith wrote about cast bullets in revolvers was correct. Normal cast bullets fired with medium or full charges of powder

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upset to fill the chamber mouths before they ever get into the barrel. (Abnormally hard cast bullets don't bump up, but have other problems.) In other words, no matter the size of the cast bullet when loaded, by the time the bullet reaches the barrel, assuming a stout powder charge, the cast bullet has jumped up in diameter to fill the chamber mouth.

This is good, because the tight fit thus restricts gas leakage past the bullet, which reduces gas-cutting of the top strap and reduces melted or softened lead on the sides of the bullet before it rams into the forcing cone and slides into the barrel. The chamber mouths have to be the same size, or slightly larger—no more than about one thousandth—than the groove diameter.

If the chamber exits are too big, the bullet arrives at the forcing cone being too big, and that can result in massive leading in the forcing cone and first part of the barrel. The degree of leading depends on the hardness of the bullet and on the At the left is perhaps the most famous of all cast-bullet handloads, the .44 Magnum with Elmer Keith's load and the bullet he designed. Next to it is the hard-cast bullet itself.

The big one was recovered from snow, and was fired from the author's well-dimensioned, accurate, and non-leading 500 Linebaugh. The next two bullets are commonly used in cowboy-action shooting, and that's a .45 LC at the right, one of the most

popular calibers for the sport. With the gun's dimensions correct, these are all perfectly viable bullets. With incorrect dimensions and soft bullets, there will be leading.

The bullet in the next chamber would have been squeezed too small for the barrel without this simple modification. condition of the barrel, in addition to the dimensions of the revolver's chamber outlets and groove diameter. Of course, misaligned chambers can add to the problem, but in my experience most of the leading problems with revolvers comes from improper dimensions, not misalignment. If the barrel is slightly rough, as when new or neglected, that makes for lead deposits that can be very hard to remove.

Fire-lapping will result in a smooth bore to which not much lead will stick, but if the dimensions are just plain wrong, you'll always have a problem with leading, even though it may be relatively easy to remove. What were the dimensions of my old Model 29's chamber mouths? I had absolutely no idea. Yep, I owned that six-gun about 30 years and had no idea what it measured. A few days ago, I slugged the chambers for the first time (see sidebar).

They were 0.433 inch, or four thousandths larger than the barrel's groove diameter. So for three decades I have been blow ing oversize bullets into the bore, with resultant severe leading at the beginning of the

barrel. If I was too casual about the lead mix, I got bullets that were too soft, and leading got much worse.

With too-hard bullets, the leading diminished, but I found these too-hard bullets were brittle, and when they ran into a steel ram in silhouette matches they would fragment and not bring the target down. This was relatively harmless in the grand scheme of things, but did little for my confidence. So one important criteria for cast bullets is to get them fairly hard, but not too hard. If you can mark them easily with your thumbnail, they're probably too soft for best results in medium-to-heavy loads.

I always used Keith's classic SWC configuration for my cast bullets in that Model 29. As soon as I knew what the cylinder dimensions were, a light went on over my head. Armed with my new-found awareness, I measured half a dozen of my revolvers, and got more enlightened. A few of the good ones were my .500 Linebaugh, an ancient Smith & Wesson revolver chambered for .38 S&W, and my S&W stainless Model 625-3, all of which had near-perfectly matched cylinder outlets and grooves.

Another fine one was a brand-new Ruger Blackhawk in .45 LC, currently undergoing testing, and it shoots very well. These are among my most accurate revolvers. Then things got ugly. I found a S&W .357 Magnum with 0.356-inch grooves and 0.358-0.359 chamber

GETTING REVOLVERS RIGHT CONTINUED

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Barrel Slugging Simplified How do you slug a barrel? The easiest way is to secure a box of pure lead balls suitable for muzzle-loading handguns. I use Speer's 0.375-inch round balls for .357s and smaller guns, and the 0.457-inch balls for larger barrels up to .45s (see photos below). First, clean the barrel making sure there is no leading in the bore, because that gives a false reading. A few rounds of jacketed-bullet ammunition fired through the bore will probably suffice to remove stubborn deposits of lead.

Then, clean the bore and coat it with oil. I use WD40, but any oil will do. Don't dry the bore out. Next, place a suitable lead ball on the muzzle and hit it with a small hammer. Go easily to avoid banging the muzzle of the gun with the hammer. If you are worried about smacking the bore, use a wood block between hammer and ball. The lead will enter the bore and flatten out, and usually leave a ring of lead behind, which does no harm.

Use a wood dowel or suitable brass or steel rod and continue tapping the lead slug through the bore, and catch it on rags or a small towel placed within the open crane of the gun. That's to make sure the soft lead won't be distorted as it flies out the back of the barrel. With good barrels, you'll be able to push the slug most of the way through the barrel by hand. With question able barrels, you'll find a tight spot where the barrel is screwed into the frame.

These are best dealt with by fire-lapping, a discussion for another time. Once you have your slug, it should be easy to get a measurement of the widest dimension. Be sure to use a good micrometer. If the bore has odd numbers of grooves and lands, you might find it easier to measure by rotating the bullet slowly in the jaws of the micrometer, while decreasing the indicated measurement a thousandth (or less) at a time.

Hold the measurement steady, and rotate the bullet, feeling for the touch of the bullet on both micrometer anvils. Keep closing down the micrometer until you get the measurement. This is how I measure five-groove S&W barrels, and it seems to work well. For the cylinder outlets, you can use anew ball, or actually use the same one you just used by first smacking it on a flat surface with your hammer to bump it up to a fatter dimension.

Then tap or press it through the cleaned and oiled chamber from the rear toward the front, again being careful to catch it without distortions. A dial caliper stuck into the front of the chamber is not the way to measure the chamber mouth. If the chamber mouth is the same as or a thousandth larger than the groove diameter, consider yourself lucky. If it's a sound gun, that revolver should work very well with cast bullets sized to the exact groove diameter.

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outlets. It leads badly, but ongoing fire-lapping is helping it. Other bad ones were a couple of old Model 25 S&Ws which have always leaded, both of which had chamber outlets of 0.458 inch and groove diameters of 0.451. And there were others. However, the biggest surprise was a 1907 Colt Single-Action Army, which had 0.455-inch grooves, but its original cylinder had chamber outlets of only 0.451.

This old six-gun has delivered acceptable accuracy, around 3 inches at 15 yards, but I always got some unexplained fliers. The barrel, though somewhat worn and pitted, showed slight leading here and there along its length, but never near the forcing cone. Now I know why. The bullet arrived at the barrel sized down to 0.451 inch, and then hit the high lands of the old Colt here and there along the bore, and managed to get straightened out well enough to shoot passably.

Unfortunately, there is no easy fix for a situation where the cylinder is too big for the groove diameter of the barrel. Fire-lapping can help in some cases, and will at least make lead removal easier. One could perhaps plate the cylinder up and then ream it, or it might be possible to make a chamber insert that would have to be sweated in and then reamed to the correct final dimensions. This could easily cost more than the gun is worth.

Practically speaking, one would have to live with the condition and either put up with leading, or shoot only jacketed bullets through the barrel. This will ultimately shorten the barrel life, but would be a viable solution for people who shoot only occa-

sionally. Of course, the best solution would have been for me to have measured the old M29 when it was new, over 30 years ago, and then have asked the factory to fit anew cylinder with the correct dimensions.

The unique problem with the old Colt SA was easily solved. Along look through gun-supply catalogs revealed no chamber reamers of the correct 0.455-inch size. I could help the mismatch, but not fix it with the fairly costly reamers commonly available through gunsmith's supply houses. But because I do some occasional machining on projects other than guns, I had the wonderful KBC Tools & Machinery catalog on hand (www.kbctools.com).

This company sells milling and lathe cutters, all kinds of machinery and tools, and also a vast selection of reamers. One page of the thick catalog had what I wanted. On that page were listed over 1,000 chucking reamers in one-thousandth-inch increments (and some with finer increments), within the range from 0.0300 up to 0.9995 inch. The amazing thing is, all these reamers are in stock, and range in price from about \$10 up to less than \$50 for the biggest reamers.

A few of the interesting gunny sizes include: 0.3560, 0.3570, 0.4100, 0.4110, 0.4300, 0.4305, 0.4515, and for me, 0.4550 inch. And if you can't find what you need, they'll make you whatever you need for a surcharge of 30 percent. How can you beat that?

In addition to machinery and tooling, the KBC Tools & Machinery catalog contains many odd and hard-to-find tools, shim and bar stock, power tools, clamps, gauges, calipers, abrasive wheels, lathes, milling and

drilling machines in all sizes, and most of the tools and machinery anyone would need for gunsmithing and/or other machine work. Want a ten-cent pin? They've got it. How about a \$42,000 centerless grinder? They've got that, too.

In my dealings with them over the past four or five years, I've found them to be thoroughly professional. I promptly ordered a 0.4550-inch reamer for my old Colt. The reamer arrived in two days and cost about \$18. The company stocks thousands of reamers, many in sizes that are well suited to gunsmithing. I immediately took it to the cylinder of the old Colt, using my drill press and a secure fixture to hold everything firmly. Then, with the new dimensions, I shot the old Colt again.

To my utter joy, it no longer threw those unaccountable flyers. The average group size was reduced to about 2 inches, which in light of the worn barrel is pretty darned good for a gun approaching the century mark. I don't believe I messed up an old historic Colt in this case. The gun shows evidence it has been worked on significantly in days long past, and my work only made it a better handgun. And the work was essentially invisible anyway.

By the way, in a half-dozen old Colts I've measured, common groove size is on the order of 0.452 inch, not the commonly assumed 0.454. The only way to be absolutely certain of what you have is to measure it. If by chance you find the cylinder outlets too small, it can be an easy task to get your revolvers just right, and that makes for better shooting and happier customers. ■

METALWORKING

The Case of the Lazy Slide

Can you identify the problem with this pistol with the clues provided in the photos and text?

BY CHIP TODD FEBRUARY 2005

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Recently, I received a High Standard H-D Military .22 LR semi-auto pistol in trade, and felt like I'd made a good swap. I made the deal with one of my gunsmithing students who runs a pawn shop. He had taken in the H-D and then found that it had a weak retracting-rod spring (slide-return spring). We weren't sure if there was anything else wrong with it, but other than the spring, it seemed to be in good mechanical condition, although the bluing was severely worn.

I was looking for a shooter and have always liked an exposed hammer, so I jumped on it. This model has around barrel that's flattened out at the rear to meet the slab-sided receiver. The barrel is pinned, and, as mentioned, the hammer is exposed. One of the things I liked about this one was the crisp trigger, which told me that it had probably been owned by someone who cared for it.

I knew that some evening when we were without a project to work on, the class members could find the problem with the retracting-rod spring. The gun resided in the safe in the shop for well over a year before I remem-

bered it and pulled it out for 22 Long Rifle. a second inspection. As the photos show, there was no rounding of edges or other signs of extreme wear, so it seemed unlikely that there was anything seriously wrong with the pistol.

The stop-lug fingers were like new, the retracting-rod spring was not broken and had no kinks in it, and there did not seem to be any binding. The slide was free to move rearward until about 1/2 inch before its rearward extreme, and then the return spring had good strength. It just ran out of "oomph" before the slide was

THE CASE OF THE LAZY SLIDE CONTINUED

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fully forward; it wouldn't stay closed against the rear of the barrel. The little stop-lug-plunger catch button on the top of the slide was fairly tight and Answer to This Month's Gun Clinic The previous owner probably pawned the pistol because he couldn't get it reassembled correctly. The tip-off should have been the mention of the stop-lug-plunger catch button.

The retracting-rod spring plunger must be captured in the spring-compressed position when removing the slide, or the takedown lever's fingers can't get behind the retracting-rod spring to make it push the slide forward. To disassemble the slide from the receiver, the slide should be pulled rearward, the plunger-catch button depressed and held, and the slide pushed forward. Then, the takedown lever can be rotated clockwise and the slide can be pulled off toward the rear.

The catch retains the plunger and When the slide was moved forward, the takedown lever on the right spring in the cocked position so that the fingers can get behind the plunger when the slide is reinstalled. (The hammer

should be cocked all the way to the rear to make re-installing the slide easier.) When the slide is pulled rearward again, the fingers fall behind the plunger and release the catch side of the receiver wouldn't rotate up into the horizontal position.

It would, however, when the slide was in the rearward position, which put the fingers in the upward position. When the slide was pulled rearward, there was a hard spot in the movement about an inch before its rearmost position. This could be attributed to cocking the hammer, but could it have anything to do with the slack retracting-rod spring? Can you spot the problem from the photographs, or get a hint from the description of the problem? (answer below) button.

It seems obvious that High Standard redesigned this pistol to eliminate the tricky disassembly. Civilians just aren't trained to field strip their weapons in the dark. Now, I just need to sleeve the barrel for the .17 Aguila cartridge, but that's another story. ■

MEASUREMENT & INSPECTION

Working the Colt Model 1883 Hammerless Shotgun

Produced in three grades from “state-of-the-art” to “work-of-art,” the Colt Model 1883 hammerless double is still one of the most highly regarded American-made shotguns.

BY DAVID R. CHICOINE FEBRUARY 2005

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A total of 7,366 Model 1883s were manufactured in Colt's Hartford, Connecticut, factory between 1883 and 1895. This high-quality double-barreled boxlock shotgun was offered in both 10 and 12 gauges, with a very few made in 8 gauge. Barrels were of Damascus steel, and standard barrel lengths were 28, 30, and 32 inches.

Three basic grades of Model 1883 Hammerless were available: a standard or “field” grade; the “finer” or “fancier” grade with Damascus barrel patterns; and the “fanciest” grade with elaborate engraving, checkering or carving on the stocks, and very fancy Damascus barrel patterns. This model is generally considered to be among the best American-made shotguns ever produced. Author photos. other barrel lengths and special features were available from the factory on special order.

Damascus barrels were supplied as standard, with optional higher-quality “finest Damascus barrels” for those customers who were willing to pay a bit more. Colt's competition was stiff, coming primarily from oth-

er high-quality doubles like the American-made Parker, the L. C. Smith, and Like all fine guns of their day, many some of the high-end British-made shotguns.

Despite the competition, the Model 1883 hammerless double shotguns were considered state-of-the-art—as good as you could buy—and to this day they are regarded as being among the very best shotguns ever made in the U. S. Takedown Instructions Begin by making sure the gun is unloaded. Hold the shotgun around the wrist of the grip while keeping your fingers away from the triggers. Always be sure you point the muzzles of the gun in a safe direction.

Open the shotgun by pushing the rear of the top lever (#56) to the right, and swing or break the barrels (#63) open and down so they pivot away from the receiver (#62). Visibly examine the open chambers to be certain there are no shells in them. If there are shells present in the chambers, lift them out and remove them to a safe location away from where you are working. Remove the Forend and Barrels. Shut the barrels and then turn the gun so its bottom is facing up. Operate the

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forend lever (#8) by pulling the front end of the lever up Colt Model 1883 and away from the Hammerless Double Shotgun forend. The forend (Specificationssubjectto assembly can now changewithoutnotice) be removed from the gun by pulling its front end away from the barrels and forward. Now you can turn the gun right side up once again. Hold the barrels in your left hand and the wrist of the buttstock in your right. Operate the top lever again and break open the barrels.

When they have opened, lift them up and slightly to the rear to remove them from the receiver. Removing the Trigger Assembly and Buttstock. You will 43 Forend Lever Step find two screws at 1 Left Hammer 22 Tang Screw 44 Extractor Cam Pin 2 Left Trigger 23 Guard Bow Screws 45 Hammer Roll the rear of the triggerguard (#54) tang, behind the bow.

Unscrew and remove these two screws (#23), then pull the 3 Left Sear 4 Left Sear Spring 5 Action Bolt or Locking Bolt 6 Draw Bar 7 Extractor Cam or Ejector Hook

8 Forend Lever 24 Fore End Strap Screws 25 Small Tang Screw 26 Sear Screw 27 Extractor Screw 28 Safety Spring Screw 29 Sear Spring Screw 46 Hammer Roll Pin 47 Draw Bore Pin 48 Mainspring Roll 49 Forend Lever Spring 50 Joint Pin or Cocking Hinge 51 Extractor rear of the trigger- 9 Forend Lever Bolt 30 Forend Lever Plate Screw 52 Extractor Screws 10 Safety Slide or Safety Lever 31 Lock Cover Plate Screw 53 Trigger Plate guard tang away from its inletting in the buttstock, and rotate the entire guard about two full turns in a counter-clock- 11 Safety Catch or Safety Bar Cam 12 Safety Lever or Safety Button 13 Right Hammer 14 Right Trigger 15 Right Sear 16 Right Sear Spring 32 Trigger Screw 33 Safety Lever Screw 34 Forend Lever Spring Screw 35 Trigger Spring Screw 36 Extractor Push Pin 37 Cocking Hinge Screw Pin 54 Trigger Guard Bow 55 Lock Cover Plate or Floorplate 56 Top Lever 57 Buttplate 58 Forend Wood 59 Buttstock wise direction, until 17 Action Spring 38 Hammer Pin 60 Forend Iron 18 Mainspring 39 Safety Slide Pin 61 Forend Release

Assembly it falls off the bottom 19 Safety of the trigger plate 20 Trigger (#53.) Unscrew, then 21 Buttplate remove the small tang screw (#25) from the rear of the lower tang and the large tang screw (#22) from the upper tang.

The large tang screw is located under the top lever, so you have to hold the lever to the side. Remove the screw from the front of the trigger plate. This is the rear-most Spring 40 Safety Catch Pin Spring 41 Extractor Cam Screw 42 Forend Lever Pin of the two large screws that face up on the bottom of the receiver, located in front of the trigger guard. Use a small wooden mallet or a wooden hammer handle to tap the side of the receiver.

This will cause the trigger plate to be shocked up out of its seat. 62 Receiver Stop Pin 63 Barrel Set Note: Not all parts are illustrated. Then lift the trigger plate assembly off from the bottom of the receiver. Tilt the buttstock (#59) down, and gently ease it off the receiver to the rear and down. Opening up the Action. Unscrew and

WORKING THE COLT MODEL 1883 HAMMERLESS SHOTGUN CONTINUED

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Original caption: Left top: Opening the forend lever releases the forend from the barrels. Left bottom: The tang screw is located under the opening lever. It must be removed before the trigger plate can be taken out. (#1 and #6) assembly from the bottom.

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remove the lock coverplate screw (#31). This is the forward-most of the two large screws facing up on the bottom of the receiver, in front of the trigger guard. Then use a small wooden mallet or plastic hammer to tap the side of the receiver, causing the lock coverplate (#55) to be shocked up out of its seat with the receiver. Lift off the lock coverplate to expose the action. Push up on the rear of both the left and right sears (#3 and #15) to allow the hammers to fall.

From the bottom of the action, loosen and remove the two trigger-spring screws (#35) and lift out the trigger springs (#20). Pay attention to which spring is left and right, and mark or tag them so they can be reassembled correctly. Now unscrew and remove the sear screw (#26). This is the screw located at the lower-rear, on the right side of the receiver. Lift out both the left and the right sears, pay-

ing attention as you do to which sear is from which side. Again, tag them so they can be reassembled correctly.

Removing the Hammers, Mainsprings, and Drawbars. This next operation sounds tricky—in fact, is a bit tricky—but when you've done it once, you'll understand how simple it is. Carefully clamp the receiver, bottom side-up, in a padded vise. Unscrew and remove the two cocking-hinge screw pins (#37) from the front, making sure you mark them left and right. Next, drive out the hammer pin (#38).

Use a screwdriver blade to push the tips of both firing pins back into their holes in the frame, and push rearward on the left hammer-drawbar

You must use restraint and keep your thumb over the rear of the hammer, because as the assembly slides to the rear, the mainspring (#18) will become uncompressed. Carefully

now, slide the three component parts—hammer (#1), drawbar (#6), and mainspring (#18)—to the rear and lift them out, being very cautious as you do to note their relative positions for reassembly later.

Before you do anything else, you'll want to take some careful notes on the exact position of the hinge pin. (The hinge pin is the large, often engraved round pin at the front of the action that the barrels actually pivot on.) Mark on it with a black marker to show its position relative to the outside of the action. The reason for this is the drawbars have to hook back onto the cams on the hinge pin during reassembly, so the position of this pin is critical.

Once you have reached this point, you can remove the right-side hammer (#13), drawbar, and mainspring in exactly the same manner as you. Here the right side parts are illustrated.

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Original caption: Right top: This is the bottom side of the Model 1883 Colt action with the lock cover removed. Right bottom: The arrow points to the hinge pin. Be sure to mark its position on the frame side before you remove the hammer/ mainspring/drawbar assembly. did with the left side. The hinge pin can be removed from the side, but remember: Don't fail to mark its exact position for later reassembly. Further Action Disassembly. Look up into the bottom of the upper tang, and carefully pry out and remove the action spring (#17).

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This is the spring that supplies tension to the top lever, so you will have to use caution to keep this spring captive while you are removing it. Now you can rotate the top-lever about 90 degrees to the right and lift it straight up and out of the receiver. The Colt's locking bolt (#5) can now be pulled to the rear and removed from the action.

Next, unscrew and remove the safety-spring screw (#28) from the underside of the upper tang, then drive out the two safety-slide pins (#39) from the bottom of the safety slide (#10). The safety slide will then be free to be pulled out from the top. Disassembling the Trigger Plate. Unscrew and remove the safety lever screw (#33) and lift off the safety lever (#12). Use a pin punch and hammer to drive out the safety-catch pin (#40), and lift out the safety catch (#11).

Unscrew and remove the trigger-spring screw (#35), and lift out the trigger spring (#20). Next, remove the trigger screw (#32) and pull both triggers (#2-left and #14-right) out the bottom of the trigger plate. Carefully tag each trigger. Disassembling the Forearm Assembly. Pull open the Colt's forend release lever (#61) and unscrew and remove the forend lever-plate screw (#30).

This is the larger-headed screw located in the top of the forend iron. Now, the forend-release assembly will drop out the bottom.

The forend-lever bolt (#9) is now free, and can be lifted off the top of the forend-release assembly. Drift out the forend-lever pin (#42) from the side of the forend-release assembly. This will free the forend lever (#8), the forend-lever spring (#49), and the forend-lever step (#43) for easy removal. Unscrew and remove the remaining screw in the top of the forend iron. This is the forend-strap screw (#24), and now the forend iron can be lifted up and to the rear for removal from the wood (#58).

Use a hammer and pin punch to drive out the extractor-cam pin (#44) from the side of the forend iron, and lift out the extractor cam (#7). The extractor push pin (#36) can now be lifted out toward the front of the forend iron. Conclusions It's a really good idea when disassembling any double gun to use three small parts containers. One should be marked "left," the other marked "right," and the third container should be used for parts that are not unique to either side.

And, as always, you simply reverse the disassembly procedure for reassembly. ■

MAINTENANCE & REPAIR

Reader Forum

BY AMERICAN GUNSMITH EDITORS FEBRUARY 2005

ORIGINAL PP. 23-24

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Enfield Bolt Heads I've read in the Speer Reloading Manual, No. 13 that there are replaceable bolt heads that come in three different lengths to correct improper headspace on British Lee-Enfield rifles. Do you know of any possible sources for these? According to our contacts at Speer, a former Canadian military armorer related the news of the bolt heads. Ordinarily, correcting headspace problems was a major arsenal-only operation.

To make it easier for lower-level post armorers to attempt a resolution, bolt heads numbered 1, 2, and 3 were issued. If none worked, the rifle still had to be returned to the major arsenal where barrels could be set back if complete bolts failed to cure the problem. No one we've spoken with can confirm a source for the bolt heads you want. We have heard, however, that they can often be found at gun shows.

We suspect that the closer to the Canadian border the show is held, the better your chances will be for finding these parts. Radom Restoration I would like to know if you have done any issue covering the Radom P-35. I'm trying my first full restoration job. The gun is not worth much, so my friend gave it to me to see if it could be fixed. I'm having trouble with the sear spring. When I slide the mainspring housing back into the frame, the sear spring does not stay seated against the sear and the disconnecter.

Can you tell me how to solve this problem? Chris Hunter We haven't done anything on the Radom, although full takedown instructions appear in the NRA Guide to Firearms Assembly, hard cover edition. The Radom design closely resembles the M1911. What you should do is make certain the base of

the sear spring is seated in the grip frame, partially insert the mainspring housing to capture it in position, and then push the housing fully into the frame.

Win Mag-Tube Removal How do you remove the magazine tube from the receiver of the Model 1300 Winchester? Do the upper and lower plastic magazine guides need to be removed in order to accomplish this? If so, how is that done? Burt The magazine tube is press fit in the receiver. Are you familiar with the term "slide hammer?" Ideally, a slide hammer is a lead cylinder with a hole through the center that freely fits the tube but is smaller in diameter than the mag end cap.

The tool can be made of other materials, but lead does the least damage. After you make or borrow the slide hammer, get a spare end cap, swap it for the end cap on the tube, and secure the receiver upside down between protected vise jaws. With the barrel off, use a rubber or leather mallet to drive the tube into the receiver. This will free the throat(s). After retrieving it/them, the tube can be withdrawn.

When replacing the throat(s), slip the slide hammer over the tube's receiver end, insert the tube in the receiver, position the throat piece(s) and pull the tube forward to capture it/them. Make certain it/they are properly positioned. Using one hand, repeatedly drive the slide hammer back against the substitute end cap to secure the assembly. Take care not to use excessive force with the slide hammer. Doing so will damage the tube's external threads.

Also, use a block or square of hard wood in the ejection port of the receiver to prevent crushing in the vise. The wood will not in-

terfere with throat removal if it is kept clear of the mag-tube opening in the receiver. After reinstallation, check the function with dummy rounds.

It's possible there may be interference between the carrier and the throat(s), in which case the preceding process for removal and installation will have to be repeated. Helwan Operation I have an Egyptian Helwan 9mm semi-automatic on the bench. It is new out of the box, and for a mass-produced third-world military/police weapon, is not bad, although it has lots of rough parts and tooling marks on the frame.

My research tells me that, for all intents and purposes, it is a Beretta Model 51, but the finish work is certainly not the same. My job was to smooth it up. The trigger was very stiff and had lots of drag. I polished all of the camming action, sear/hammer lock, trigger bar, hammer, and pins. The pull was much improved and smooth. The problem I have is as follows: I cycle the slide back to cock the gun, then put the safety on.

I can pull the trigger gently and the sear will not disconnect, but when I pull it real hard, the sear will disconnect but the safety will hold the hammer back. I then have to recock the hammer to reconnect the sear. After study, I can't see how the safety can hold the sear from unlocking. What am I missing? It's a good shooter, and I want the customer to have a safe weapon. As always, thanks for your help. Al Skuce The Helwan is an exact copy of the Beretta 951.

It was made in Egypt, so Arabic markings and production quality are the only differences.

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(continued from previous page) The safety doesn't act on the sear in the Helwan. It blocks the hammer. When the pistol is fully locked, the trigger bar forces the sear back to disengage the hammer. But if the safety is "on," the hammer will not fall. What you seem to have done with your "hard pull" is create a misfire condition so far as the gun is concerned. It is not a DA pistol. The hammer must be recocked manually and the safety "off" in order to fire. Universal M1?

I've read that the Universal "copy" of the M1 carbine is less than desirable, and some claim that it can be dangerous. The AGI video indicates the possibility of soft metal. There seems to be collectors for everything these days, but not for these guns. It seems they have little value. Do you have any comments regarding this carbine? Dave The problem of soft metal may not only exist in Universal-made carbines. One we know of, a former U. S.

Military model of Winchester manufacture, shattered its bolt face upon chambering around during one rapid-fire stage of a sanctioned National Match Course. Universal was one of many commercial M1 Carbine makers, the majority of whom are no longer in business. The same is true of a few of the 10 prime government contractors. By far, the largest number of military carbines (2,626,807) were made by the Inland Manufacturing Division of General Motors.

The smallest number (239) and arguably the most collectible were produced by Commercial Controls Corporation, formerly National Postal Meter. A key to quality, in our opinion, is whether the receiver is cast or machined from a solid block of steel as was the case with the Springfield, Inc. commercial models. For more information, we advise you to purchase a copy of Jerry Kuhnhausen's *The U. S. .30 Caliber Carbines - A Shop Manual* (VSP Publishers, Box 887, Mc Call, ID 83638).

Greener Pastures I hope that you or your readers can help me with the origin or history on an old percussion single-shot shotgun I recently restored for a former police chief. It is marked: "FABB R IN TORINO." Attempts to get info through books and the internet have been futile. I also have a well-made, engraved double 12 gauge. It's labeled "Albert Greener." I can find no information on this and letters to W. W. Greener in England have not been answered. N. L.

Barber We can tell you a Greener-type lock is a form of crossbolt conceived by the legendary W. W. Greener of London (circa 1800s). It's identified by atop extension protruding from the chamber area into a fitted breechface recess, thereby significantly strengthening the locking mechanisms of break-open-type shoulder arms.

The Greener system remains in use today. (If you do indeed own a true Greener shotgun it may be worth considerable Yankee

dollars.) Any information on the other shotgun must be sought from the NRA Museum (Waples Mill Road, Fairfax, VA 22030) with your query accompanied by photos of the gun. Additional information on Greener might be obtained from the same source or The Curator of Arms and Armor, Tower of London, London, England. And by the way, N.

L., we're sorry we could not answer your question sooner and you had to wait for your question to appear here. But that's because you didn't provide a return address with your query. We ask all our readers to provide their names and return contact information when submitting questions or comments for this column. And while we're on the subject of queries, we ask readers to avoid contacting the Technical Hotline for assistance in identifying a firearm.

You should first consult *The Blue Book of Gun Values*, *Flaydermans*, and *The Standard Catalog of Firearms* (Krause Publications). If you don't find the information you seek in these sources, we suggest you send a letter with photos of the unidentified firearm to the NRA Museum. The Hotline can help you with many gunsmithing problems, but we are simply not equipped to help in identifying antique and unusual firearms.

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